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ABSTRACT

Classroom management and what teachers can do to make it possible for children to behave better, which permits learning to occur, are the subjects of this handbook. The authors hypothesize that the first step toward better classroom management is a teacher's recognition that how children behave is largely determined by the teacher's behavior. When teachers employ operant conditioning they systematically use rewarding principles to strengthen children's suitable behavior. Ignoring unsuitable behavior will discourage its continuance. Behavior can be changed by three methods: (1) Reward appropriate behavior and withdraw rewards following inappropriage behavior, (2) Strengthen the rewards if the first method is unsuccessful, and (3) Punish inappropriate behavior while rewarding appropriate behavior if methods (1) and (2) fail. The booklet explains each method and offers supporting research and evaluations of the use of different methods. It outlines step-by-step procedures and has appeal for parents, teachers, and anyone involved in training children. (DO)

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reducing behavior problems: an operant conditioning guide for teachers

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Introduction

Peter is a 4-year-old-boy. His mother was having great difficulty managing him and sought help. Peter often kicked objects or people, removed or tore his clothing, spoke rudely to people, bothered his younger sister, made various threats, hit himself, and was easily angered. He demanded constant attention. He had been evaluated at a clinic for retarded children and was found to have a borderline IQ (70-80). He was said to be hyperactive and possibly brain damaged.

Peter's behavior was observed in the home an hour a day for 16 days. During an hour Peter showed 25 to 112 behaviors which mother found objectionable. When Peter misbehaved, mother would often attend to him and try to explain why he should not do so and so. At times she would try to interest him in some new activity by offering toys or food. (This procedure is called the distraction method for dealing with problem behaviors.) Mother would sometimes punish Peter by taking away a toy or misused object, but Peter was usually able to persuade mother to return the item almost immediately. At times he was placed on a chair for short periods of time as a punishment. Considerable tantrum behavior usually followed such discipline. Mother responded to tantrums with additional arguments, attempting to persuade Peter to stop.

Peter's behavior was changed by the following procedure (Hawkins, Peterson, Schweid, & Bijou, 1966). An observer in the home would cue mother by raising one, two, or three fingers. One finger was raised when Peter showed an objectionable behavior. Mother was instructed that this meant that she was to tell Peter to stop what he was doing (a warning signal). If Peter did not stop, two fingers were raised. This meant that mother was to immediately place Peter in his room and shut the door (punishment). He had to stay there until he was quiet for a short period before he could come out. If Peter was playing in a nice way, three fingers were raised. This meant that mother was to go to Peter, give him attention, praise him, and be physically affectionate (reinforcement).

Peter's objectionable behavior dropped to near zero within a few days. Follow-up observations showed a continuing good interaction between Peter and mother and an absence of the objectionable behaviors. Peter was receiving more affection from mother and approaching mother in more affectionate ways. Mother was much more sure of herself, provided clear consequences for Peter's behavior, and no longer gave in after starting a correction procedure.

Psychologists who have worked with many children like Peter for-years-on-end are often amazed by the convincing data presented to demonstrate that rapid change took place in Peter and mother. When we talk about Peter to teachers, they immediately see parallels to children with whom they are working and they wonder if similar procedures will help them handle

management problems in their classrooms. The answer is YES.

In this review, we have attempted to outline some of the more recent research findings on applications of learning principles in elementary classrooms and pre-schools. *We have focused on what the teacher can do* to make it possible for her children to learn better. The first step toward better classroom management is knowing that *what the children do is a function of the teacher's behavior.* The teacher can change the behavior of her children by changing her behavior. Three procedures which can be followed by teachers in changing children's behavior are presented in some detail, along with supporting research, and evaluations of when each procedure might or might not be appropriately used.

A Selected Glossary

Contingency. A stimulus event which is made conditional upon a response. If response X occurs, then stimulus Y will be presented.

Contingent Reinforcement. A reinforcer is presented if, and only if, a specified response occurs.

Differential Reinforcement. Some specified responses are followed by reinforcers and other specified responses are not reinforced.

Extinction. A procedure whereby an accustomed reinforcer is withheld. The effect on behavior is first a slight increase in the strength of the behavior followed by a weakening of the behavior.

Incompatible Behavior. Behaviors that can't be performed at the same time. For example, a child cannot be seated and moving about the room, simultaneously. Therefore, by inference, one behavior is increased as the other is reduced.

Operant Behavior. Behaviors involving the voluntary muscle system which are strengthened or weakened by stimulus events which follow such behaviors. Operant behaviors operate on the environment.

Punisher. A stimulus presented following a response which weakens the probability of future occurrence of the response. The process of presenting stimuli following responses which weaken the responses is called punishment.

Reinforcer. A stimulus presented following a response which strengthens the probability of future occurrence of the response. The process of presenting stimuli following responses which strengthen responses is called reinforcement.

Respondent Behavior. Behavior usually involving smooth muscles and glands which is controlled by stimuli which precede it. Reflexive behavior.

Response. That part of behavior which is essential for reinforcement or punishment to occur. An operant response is always a member of a class of responses which have the same consequence.

Stimulus. An environmental event which does or can be made to influence behavior. The plural of stimulus is stimuli.

In its simplest form, operant conditioning involves the systematic use of consequences to strengthen and weaken behaviors under specified stimulus conditions. Operant behavior is strengthened by some consequences called reinforcers, and weakened by other consequences called punishers. Withdrawal of reinforcing consequences will also weaken behavior. This procedure is called extinction.

The laws of operant behavior are generalizations drawn from the experimental analysis of behavior. They summarize which events influence behavior in what ways. Many persons seem shocked when first exposed to the idea that there are systematic ways of influencing the behavior of others (or one's own). They find it a difficult idea to accept; it smacks of *Brave New World.* Actually, the law of reinforcement is no more revolutionary today than the law of gravity. Capitalistic economic systems are built on such a law of behavior. How many of you would continue to teach if you were not paid for doing so? A paycheck is an important reinforcing consequence for most of us. For most teachers another important reinforcing consequence for teaching is seeing children learn. If all our teaching efforts failed, we would very likely quit teaching ("be extinguished for teaching"). The teacher does not have a choice in the question of whether or not her children will be influenced by reinforcing and punishing events. The only choices the teacher has are (1) to use reinforcement principles systematically to optimally help her children develop, (2) to blindly and haphazardly approach the training of her children, or (3) to leave the training to less competent sources of reinforcement and punishment, such as other children.

Another commonly raised objection to operant conditioning is that the approach is often associated with the use of tangible rewards for improvement in behavior or learning. "I want my children to love learning itself, not just learn in order to get something." Again, remember your paycheck. The children need a payoff, too. The fundamental question here is this: "Suppose the children right now do not work at learning for its own sake? What are you going to do about it?" It so happens that those using operant conditioning principles are able to teach children to work at learning for its own sake. They do this initially by using tangible reinforcers or social reinforcers which can be slowly faded out as task completion becomes reinforcing to children, or until sufficient skills are acquired so that reinforcers of various sorts can be gained from the learning task (e.g., reading a funny story).

To those who are concerned about issues of freedom and control over human behavior we say the issues are always there whether one makes use of available knowledge or not. There is available a technology of teaching and

training which makes it possible to help children and adults live more effective and useful lives. Many children and adults who now populate our institutions for the retarded and the mentally ill, our special education classrooms, and the ghettos of our cities need not continue to do so. Is it morally right to foster stupidity, starvation, incompetence, and degradation when we could do otherwise?

While the present review will focus on the recently articulated implications of operant principles for the reduction of behavior problems with the teacher as the change agent, the reader should keep in mind that these principles have many other applications for the improvement of society. Just in public schools, however, it is our impression that as many as 80 to 90 percent of the children typically referred by the teacher to psychologists, social workers, or special education classes can be handled most effectively by the regular classroom teacher.

This review draws heavily on examples from the work of its authors (Becker, Thomas, and Carnine). The reader should recognize that parallel and related studies are being carried out in many other applied behavioral research centers from Oregon to Kansas to Michigan to Long Island.

In general, the research strategies used in the studies covered by this report have the following features:

1. Individuals are studied under specified experimental conditions, with the same individuals going through the various phases of the experiment. This approach leads more directly than others to knowledge of procedures which will or will not work with individual children.

2. Often the experimental procedure is withdrawn after being introduced to show more clearly the effect of experimental procedure. For example, when teacher praises more, on-task behavior increases; when teacher praises less, on-task behavior decreases.

3. The behaviors to be changed are defined in terms of observables, events which the teacher can see and do something about. Before the experiment starts, reliability of observations is established by checking the agreement among several observers. A review of field experimental research procedures may be found in Bijou, Peterson, and Ault (1968).

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Change Procedure I: Presentation of Social Reinforcers Following Appropriate Behaviors and Withdrawal of Social Reinforcers Following Inappropriate Behaviors

Stimuli which are based on the behavior of people are called social stimuli. These include physical nearness, contact, verbal behavior, physical appearance (face, smiles, frowns). Social stimuli which function to strengthen behaviors which they follow are called social reinforcers. It is of extreme social importance that stimulus events most readily managed by the teacher (those stimulus events produced by her behavior) have been found to be most influential in strengthening and maintaining the behavior of children. The following studies illustrate the range of behaviors found to be controlled by social reinforcers in a variety of settings.

Work in the experimental preschools at the University of Washington, University of Kansas, and University of Illinois by Wolf, Baer, Bijou, and their students laid the groundwork for extensions of operant procedures to public schools. Only a few examples of this research will be presented. The bibliography in this area is growing very rapidly. Hart, Reynolds, Baer, Brawley, and Harris (1968) carefully studied the consequences controlling the obnoxious behavior of a 5-year-old girl named Martha who was "balky, verbally insulting, occasionally foulmouthed, and prone to tell disjointed stories about violent accidents." The general results of the study are graphed in Figure 1.

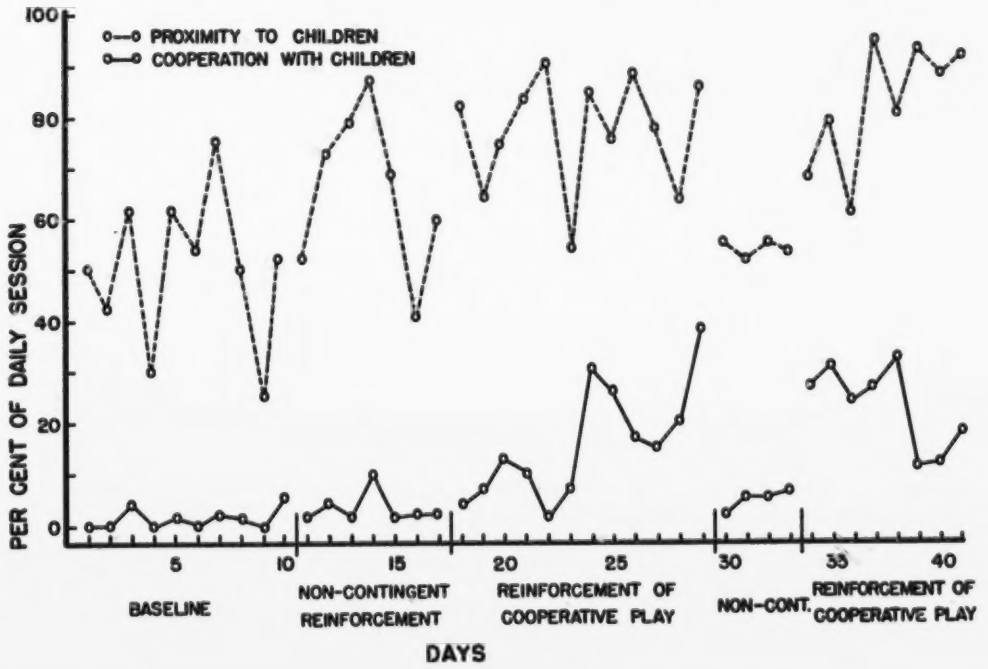


Figure 1. Daily percentages of proximity and cooperative play over sequential experimental conditions.

For the first 10 days, Martha's teachers maintained their ongoing pattern of responding to her. This initial period is called the baseline and serves as a basis for comparing experimental effects. During baseline Martha was found to be near other children about 50 percent of the preschool time, but played cooperatively less than 5 percent. The teachers interacted with Martha about 10 percent of the available time intervals.

For the next 7 days, the teachers showered Martha with social reinforcement and desirable material goods. They attended closely to her, laughing, conversing, and showing admiration. Such attention was given about 80 percent of the available time. Some psychologists might have predicted that this "unconditional love" might lead Martha to be more cooperative. Cooperative play remained at less than 5 percent. This period is labelled

noncontingent reinforcement on Figure 1 since events which usually function as reinforcers were presented on a random basis, rather than being contingent upon a class of behaviors.

In the third phase of the experiment, cooperative behavior was directly followed by attention, praise, and equipment or materials. Martha was ignored if she showed her obnoxious behaviors. Ignored in this case simply means withdrawal of attention of all sorts from Martha and giving attention to another child. Cooperative play rose to 40 percent.

When noncontingent reinforcement was again introduced, cooperative behavior decreased. Finally, reinstatement of reinforcement for cooperative play increased such play.

The conclusion of the study was that social reinforcers from adults can serve to strengthen behaviors followed by such reinforcement. *Just being nice is not enough.* It is very likely that Martha's obnoxious behaviors were being maintained by the attention they received although the present study did not address itself to that question.

Consider two more examples. Harris, Johnston, Kelley, and Wolf (1964) studied a 3-year-old who spent 80 percent of the time crawling on the floor. When the teachers only gave attention for standing and walking, a normal walking pattern was established within a week. Switching attention back to crawling and not attending to standing reinstated regressive crawling for 80 percent of the time periods. Again switching back to attention for standing reinstated a normal pattern of upright behavior.

Buell, Stoddard, Harris, and Baer (1968) examined the effects of reinforcing play on outdoor equipment on the development of social skills. Polly was physically inactive and showed little social interaction with her peers. When physically active play was strengthened by using social reinforcement, it was found that other desirable behaviors appeared. There were more social contacts with peers in the form of talking and cooperative play, and there was less baby behavior.

Social reinforcement can also be used by peers. Wahler (1967) has demonstrated the profound effects of attention to or ignoring of behaviors by preschool peers. For example, in his study, Sally's doll play greatly diminished when peers were instructed to ignore such behavior. Play with other toys increased in the meantime. When the peers again reinforced doll play, its rate returned to the baseline level. Dick's aggressive behaviors were similarly controlled by the presence or absence of peer attention.

In his review of preschool studies, Baer (1966) concluded with the following appropriate comment:

> There have been a number of other studies, all of strikingly similar outcome, involving behaviors such as excessive dependency, wild and disruptive social play, extreme aggression, exclusive play with a single peer, inattentiveness, inarticulate use of language, and hyperactivity. The data of these studies are remarkably similar to the data already seen, despite differences in the personnel, the settings, the children, and the problem behaviors.

Elementary Classroom Studies

Combined Effects of Rules, Ignore, and Praise

Several studies have been conducted by Becker and his students to assess the possibility of extending the findings on preschool children to the elementary school setting.

In the first set of studies, two problem children were chosen from each of five classes (Becker, Madsen, Arnold, & Thomas 1967). Categories of child behaviors were those which disrupted learning, which violated the teacher's rules, or which the teacher saw as undesirable, e.g., thumbsucking. These categories consisted of behaviors which were similar in some important way and were defined in terms of observables (inferences were not involved). The child behavior categories are summarized in Table 1.

Table 1

Coding Categories for Children with Teachers A, B, and C

Symbols	Class Label	Class Definitions
A. Behaviors Incompatible with Learning: General Categories		
X	Gross motor behaviors	Getting out of seat; standing up; running; hopping; skipping; jumping; walking around; rocking in chair; disruptive movement without noise; moving chair to neighbor.
N	Disruptive noise with objects	Tapping pencil or other objects; clapping; tapping feet; rattling or tearing paper. Be conservative, only rate if you can hear noise with eyes closed. Do not include accidental dropping of objects or noise made while performing X above.
A	Disturbing others directly and aggression	Grabbing objects or work; knocking neighbor's book off desk; destroying another's property; hitting; kicking; shoving; pinching; slapping; striking with object; throwing object at another person; poking with object; attempting to strike; biting; pulling hair.
O	Orienting responses	Turning head or head and body to look at another person; showing objects to another child; attending to another child. Must be of 4 seconds duration to be rated. Not rated unless seated.
	Blurting out, Commenting and vocal noise	Answering teacher without raising hand or without being called on; making comments or calling out

		remarks when no question has been asked; calling teacher's name to get her attention; crying; screaming; singing; whistling; laughing loudly; coughing loudly. Must be undirected to another particular child, but may be directed to teacher.
T	Talking	Carrying on conversations with other children when it is not permitted. Must be directed to a particular child or children.
//	Other	Ignoring teacher's question or command; doing something different from that directed to do (includes minor motor behavior such as playing with pencil when supposed to be writing). To be rated only when other ratings not appropriate.

B. Special categories for children with teachers A, B and C (to be rated only for children indicated)

+	Improper position **Carole and Alice**	Not sitting with body and head oriented toward the front with feet on the floor, e.g., sitting on feet; standing at desk rather than sitting; sitting with body sideways but head facing front. *Do not rate if chair is sideways but head and body both oriented toward the front with feet on the floor.*
S	Sucking **Alice and Betty**	Sucking fingers or other objects.
B	Bossing **Carole**	Reading story out loud to self or other children *(do not rate ! in this case);* acting as teacher to other children, as showing flash cards.
//	Ignoring **Charley**	This category expanded to include playing with scissors, pencils, or crayons instead of doing something more constructive during free time.

C.Relevant Behavior

	Relevant Behavior	Time on task, e.g., answers question, listening, raises hand, writing assignment. *Must include whole 20 seconds except for orienting responses of less than 4 seconds duration.*

Additional categories of behaviors were to be recorded for children who frequently demonstrated the behaviors of improper seating position, sucking, bossing, and ignoring teacher's instructions.

Observations of teacher behaviors were made to determine if the experimental program was being carried out effectively and to record other behaviors which could possibly influence child behaviors. The teacher categories are summarized in Table 2.

Table 2

Teacher Coding Categories

Symbols	Class Label	Class Definitions
C	Positive Contact	Positive physical contact must be included–such behaviors as embracing, kissing, patting (on head), holding arm, taking hand, sitting on lap, etc.
P	Verbal Praise	This category includes paying attention to appropriate behavior with verbal comments indicating approval, commendation or achievement such as: "That's good." "You're studying well." "Fine job." "I like you."
R	Recognition in Academic Sense	Calling on child when hand is raised. (Do not rate if child calls teacher's name or makes noises to get her attention.)
F	Facial Attention	Looking at child when smiling. (Teacher might nod her head or give other indication of approval–while smiling.)
A	Attention to Undesirable Behavior	This category includes the teacher's verbally calling attention to undesirable behavior and may be of high intensity (yelling, screaming, scolding or raising the voice) or of low intensity ("Go to the office." "You know what you are supposed to be doing.", etc.) Calling the child to the desk to talk things over should also be included, as well as threats of consequences. Score the following responses to deviant behavior separately:
L	Lights	Turning off the lights to achieve control.

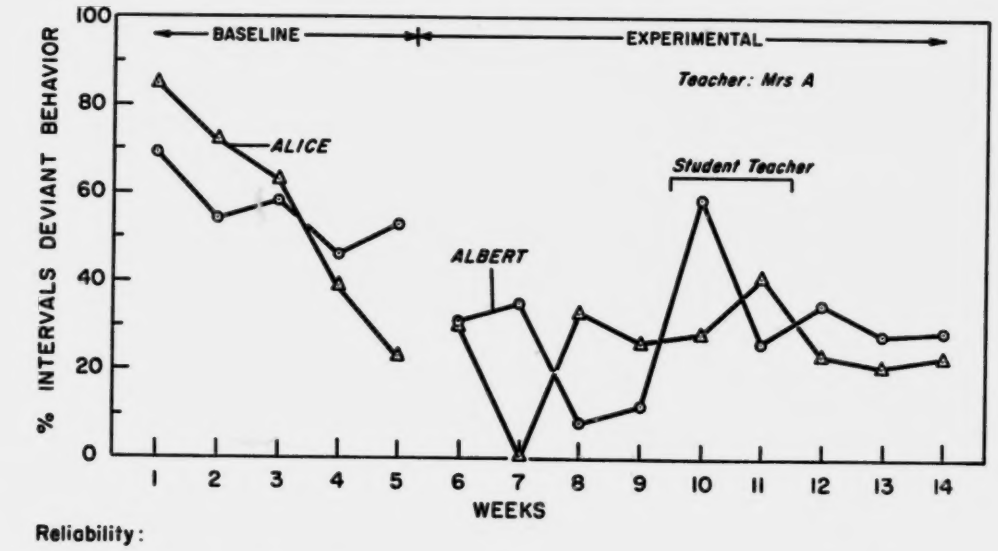
W	Withdrawal of Positive Reinforcement	Keeping in for recess, sending to office, depriving child in the classroom.
	Physical Restraint	Includes holding the child, pulling out into hall, grabbing, hitting, pushing, shaking.

After a 5 week baseline the teachers were to begin the experimental program which had three components. The teacher's rules for classroom behavior were made explicit and repeated frequently. Teachers were also to show approval for appropriate behaviors (conducive to learning), and to ignore disruptive behaviors. If a child was hurting someone, appropriate punishment, preferably the withdrawal of some reinforcement, was permitted. Part of the instructions to teachers follows:

> In general, give praise for achievement, prosocial behavior, and following the group rules. Specifically, you can praise for concentrating on individual work, raising hand when appropriate, responding to questions, paying attention to directions and following through, sitting in desk and studying, and sitting quietly if noise has been a problem. Try to use variety and expression in your comments. Stay away from sarcasm. Attempt to become spontaneous in your praise; smile when delivering praise. At first you will probably get the feeling that you are praising a great deal and it sounds a little phony to your ears. This is a typical reaction and it becomes more natural with the passage of time. Spread your praise and attention around. If comments sometimes might interfere with the ongoing class activities then use facial attention and smiles. Walk around the room during study time and pat or place your hand on the back of a child who is doing a good job. Praise, quietly spoken to the children, has been found effective in combination with some physical sign of approval.

In addition to the general instructions, the teachers were given specific instructions for each problem child. Teachers were also given daily feedback regarding their effectiveness in showing approval contingent on appropriate behavior and in ignoring inappropriate behavior.

The percentage of intervals of deviant behavior for the 10 children dropped from 62.13 percent of the time during baseline to 29.19 percent of the time during the experimental program when approval, ignore, and rules were introduced. Teacher A, speaking of one of the two problem children selected for the study, commented after using the experimental program in her class: "Albert has become a delightful child and an enthusiastic member of our class who feels his ideas are accepted and have merit." During baseline, Albert, a second grader with a normal Standord-Binet test score, was still on first grade material, and talked, made other noises, did not attend to the teacher, and often got out of his seat. During the experimental phase he worked diligently without blurting out. His stuttering stopped and the percentage of time spent in deviant behavior dropped to about 20 percent. The data on Alice (the other problem child) is less clear since the average deviant behavior began declining



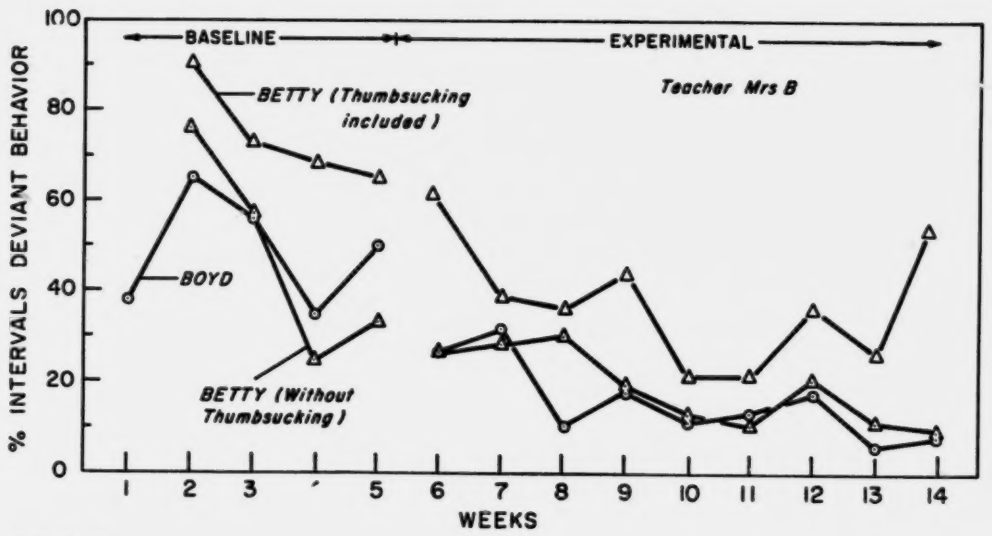
Reliability:

⊙ ALBERT	88	80	74	82	88	-	-	-	83	90	-	86	87	
△ ALICE	76	58	63	85	90	-	-	-	77	91	-	88	81	

Figure 2. Percentages of deviant behavior for two children in Class A.

during baseline; however, orienting, sucking, and other categories did decrease in frequency with the introduction of the experimental program.

Teacher B initially used sharp commands, physical punishment, and withholding privileges. However, she effectively followed the experimental

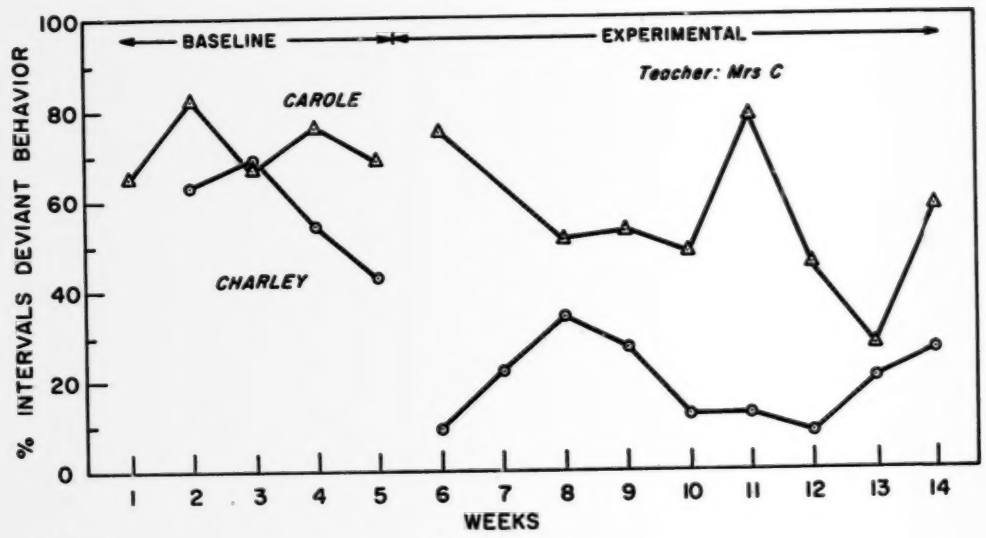


Reliability:

BOYD	80	86	85	92	95	93	-	-	-	94	-	93	-	-
BETTY	-	91	63	85	90	91	-	100	90	93	93	89	-	93

Figure 3. Percentages of deviant behavior for two children in Class B.

program with Betty and Boyd. Betty initially pestered others, made noises, blurted out, and sucked her thumb. The experimental program brought Betty's problem behavior under control, particularly for the last 5 weeks. During the final week, however, the frequency of thumbsucking increased. Boyd, the second problem child in this class, was often out of his seat, and would not work alone. The experimental program increased the time he spent seated, a large portion of which was spent on academic work.



Reliability:

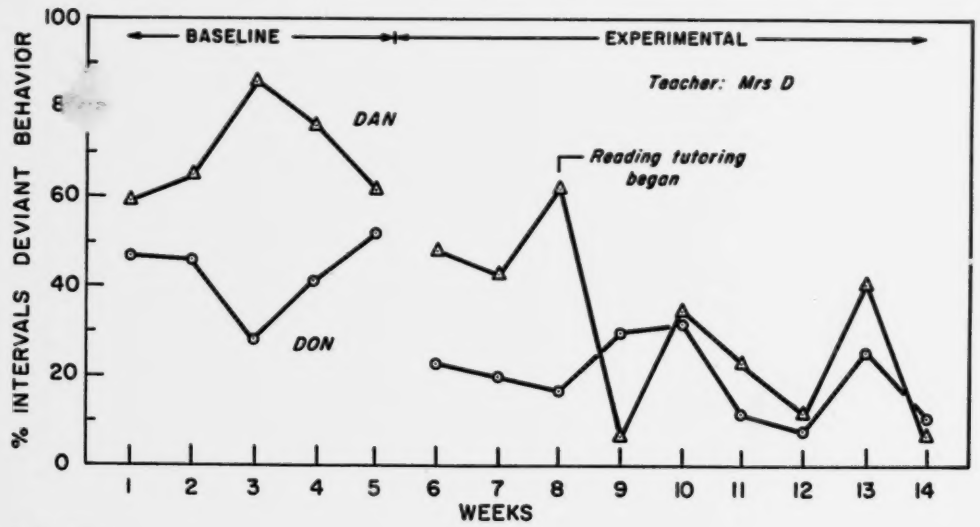
CAROLE	85	90	67	92	83	84	–	–	89	77	–	–	–	91
CHARLEY	–	91	67	86	89	95	–	100	87	89	96		78	–

Figure 4. Percentages of deviant behavior for two children in Class C.

The two children in Teacher C's class required stronger measures than anticipated. Both bullied others and were often out of their seats. Carole talked incessantly and was very responsive to peer attention. A token system (token systems will be discussed in detail later) was instituted but was effective only sporadically with her; her deviant behavior ranged around 50 percent. Charley was more influenced by the approval and the tokens; he worked harder, and his level of deviant behavior fell to around 15 to 20 percent, well below that of the baseline.

Teacher D had Danny and Don. Don was a boy of average IQ, who had been recommended for the Educable Mentally Handicapped placement 4 years earlier. He had a high frequency of moving about the room and talking during study time. He responded well to approval, and his level of deviant behavior fell from 40 percent to 20 percent. Danny, who had academic failings, responded well to teacher attention only after tutoring was begun (his case and tutoring in general will be considered in detail later).

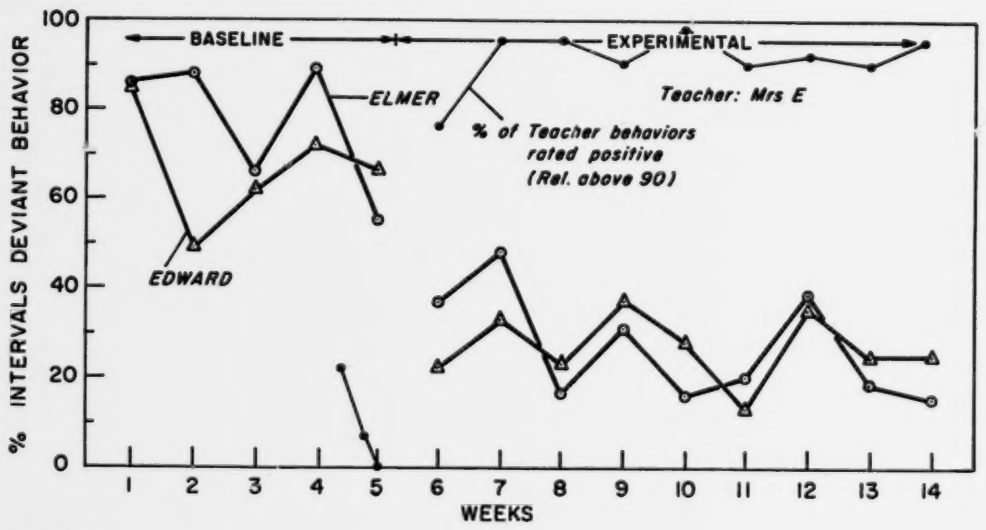
Teacher E had relied mainly on shouting to maintain order in an "unruly class." The children showed much whistling, running around the room, yelling at other children, loud incessant talk, hitting, pushing, and shoving. In this class



Reliability:

DON	89	93	86	93	85	–	–	84	61	85	96	98	–	81
DAN	76	89	91	85	90	–	–	–	–	100	96	100	–	93

Figure 5. Percentages of deviant behavior for two children in Class D.



Reliability:

ELMER	98	95	92	89	90	–	–	–	–	91	96	–	98	97
EDWARD	87	94	91	92	90	–	–	95	–	–	–	100	91	90

Figure 6. Percentages of deviant behavior for two children in Class E.

no special instructions were given to the teacher concerning the two children chosen for observation. Rather, the measurement of changes in their behavior would act as an indicator for the effects on the entire class. The average level of

deviant behavior for the two boys fell from about 70 percent to about 25 percent, a drastic reduction.

These results indicate that quite different kinds of teachers can learn to systematically apply differential social reinforcement to modify the behavior of problem children.

Separate Effects of Rules, Ignore, and Praise

Madsen, Becker, and Thomas (1968) attempted to determine the relative effectiveness of the three components of the experimental program in the study just reviewed. After baseline, each of the three components of the experimental program (rules, ignore, and praise) were introduced separately. After their effects had been determined, the teacher attempted to match her own baseline behavior to see if the problem behaviors would reappear. Finally, the three components of the experimental program were once again introduced.

The *rules* phase of the experiment consisted of the teacher forming four or five rules for classroom behavior and repeating them four to six times a day, e.g., "sit quietly while working," "walk," "raise hand," etc.

The *ignore* phase of the experiment consisted of the teacher attempting to not respond to disruptive behaviors with scolding or reprimands. She was to act as if such behavior did not happen. This part of the program was very difficult for the teacher to follow.

Finally, *praise* was added. Appropriate behaviors incompatible with deviant behaviors were to be given social approval. The teacher was to show approval of as many good behaviors as possible during the first few days. A prime rule was "Catch the children being good." Moreover, she was to give approval to improvements in behavior in order to shape the child's behavior. For example, a problem child who frequently wandered around the room

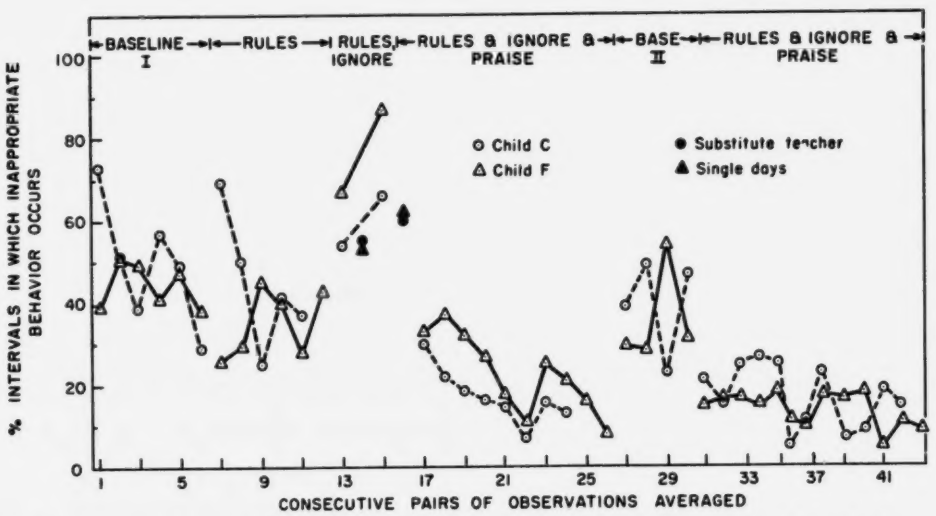


Figure 7. Inappropriate behavior of two problem children as a function of experimental conditions.

would be given approval when found in his seat even if he was not working on a task. As the time spent in the seat increased, the teacher would begin to praise him only when he was both seated and working on a task. In each case the teacher would explicitly state what behaviors she approved of; e.g., "I like the way Tommy is sitting at his desk and filling out his workbook assignment."

The results indicate that the introduction of rules alone was not effective in modifying behavior. The procedure of ignoring inappropriate behavior was difficult for the teacher to hold to. She would ignore for a while and then scold as the children got out of hand. When praise for appropriate behavior was added, in conjunction with the ignoring of inappropriate behavior, deviant behavior fell from about a 70 percent level (during baseline) to 30 percent. Deviant behavior returned to the baseline level when the teacher approximated her behavior during baseline. Finally, when the experimental procedures were reinstated, the level of deviant behavior again fell. This correspondence between the experimental changes in teacher's behavior and the level of deviant behavior points to the marked influence the teacher can have over classroom behavior.

The Reinforcing Effect of "Sit Down" Commands

Often our attempts to correct children by telling them what not to do fail. Madsen, Becker, Thomas, Koser, and Plager (1968) obtained clear evidence to show that the more frequently first grade teachers asked their children to sit down, the more frequently they stood up. Only when the children were given praise for sitting and working did the frequency of standing up decline.

How to Make a "Bad" Class Out of a Good One

The data presented in Figure 8 show that a teacher might, without intending it, produce a poor classroom with a high rate of disruptive behaviors (Thomas, Becker, and Armstrong, 1967). The data in Figure 8 are based on observing 10 children for 2 minutes each, each day. The children are bright second graders who are being observed during a morning reading time when most children are doing seat work and the rest are in a group with the teacher. Disruptive behavior was measured in a way similar to that reported earlier.

The first four experimental phases compare baseline conditions (1 and 3) with conditions where all praise is withdrawn (2 and 4). The effect of withdrawal of teacher's praise for appropriate behavior is to increase disruptive behavior from under 10 percent to approximately 28 percent. Teacher's praise is important in maintaining a well-functioning classroom.

During Phase 5 of the experiment (frequent disapproval), the teacher's critical comments were tripled so that they were occurring almost once a minute. Disruptive behaviors hit a new high. Teacher disapproval appears to be reinforcing disruptive behavior.

Phase 6 of the experiment simply returned to the No Approval condition again with a lower level of criticism. Little change resulted.

Finally, in Phase 7, the reinstatement of approval reactions by the teacher

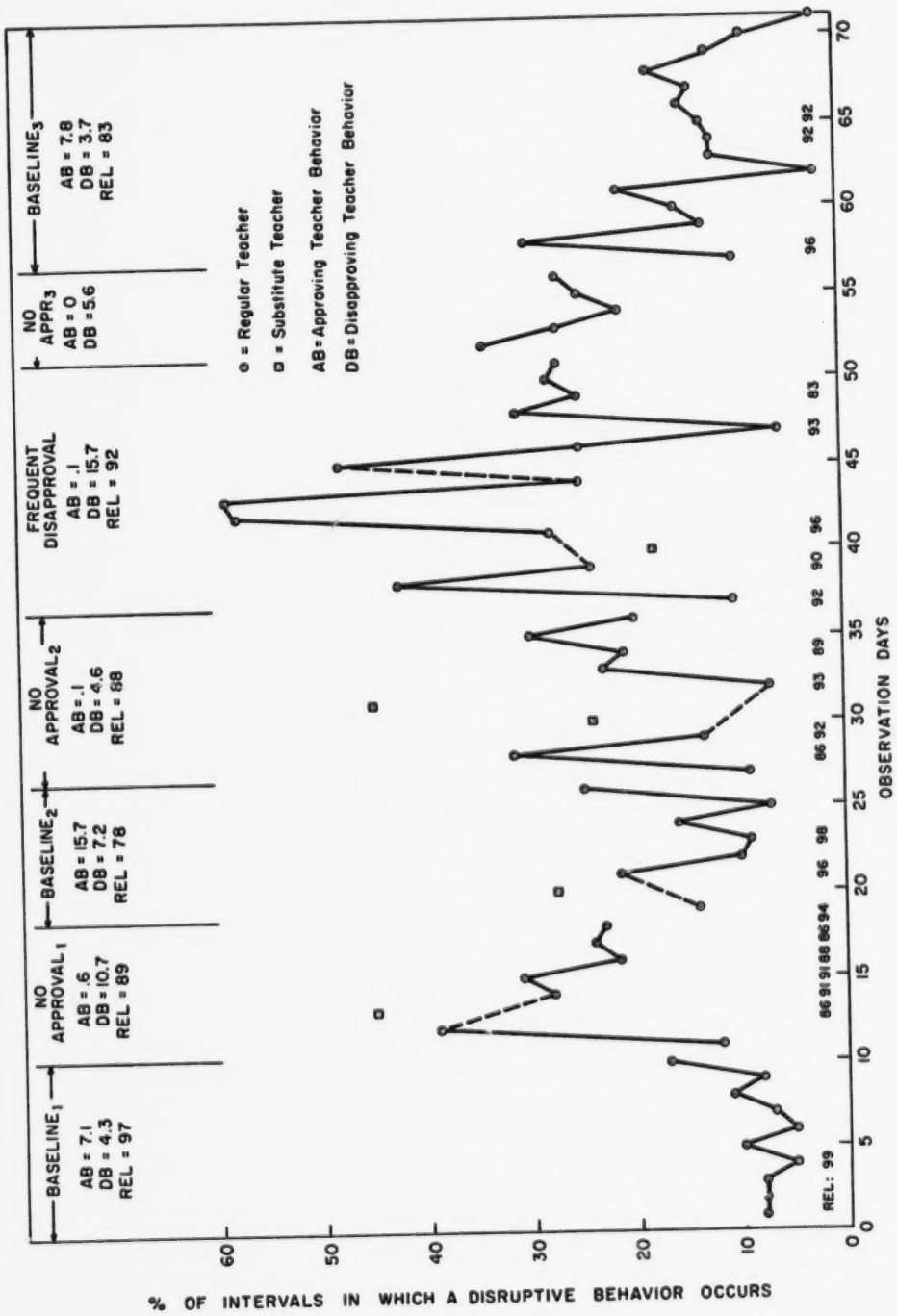


Figure 8. Disruptive classroom behaviors as a function of nature of teacher behavior. Data points represent 2 minute samples on 10 children each day. Dotted lines cross observations where the regular teacher was absent due to a recurrent illness, including a 10 day hospitalization between days 39 and 41. The dotted line connecting days 44 and 45 represents the Easter vacation break. The data for day 26 were taken with the teacher out of the room.

reduced disruptive behaviors to its original low level.

Moral. It is important how the teacher behaves. Teachers can learn to manage their own behavior in ways which can reduce problem behavior in the classroom.

Direct Versus Indirect Reinforcement

Does it make any difference which children receive the praise? Carnine, Thomas, Becker, and Plager (unpublished) examined this question by having the teacher praise three children and not praise three others. The children were initially matched for age, academic level, and frequency of relevant (on-task) behavior. Figure 9 presents the data. During baseline no praise was used for any class members (with a few slips). During Experimental Phase I, Group 1 (top graph) received much praise from teacher and relevant behavior increased from 18.5 percent to 59.2 percent. Group 2 received no praise during this period and did not improve. During Experimental Phase II, Group 2 received the praise and Group 1 did not. Group 1 decreased some in relevant behavior (but not to baseline), and Group 2 now shows more on-task behavior.

The results are clear in indicating that it is not the total amount of praise given by the teacher which is important for good classroom management, but when and to whom the praise is given.

A Program to Provide Academic Success Is Also Essential

Reinforcement procedures may be used to get rowdy children to quit messing around, to sit down, and to appear to pay attention. However, all this is to no avail if the academic program available to the child is not one in which he can succeed (learn). In a series of studies where the deviant child was behind the rest of the class in academic skills (reading being most central), we have explored some of the interactions of social reinforcement and special tutoring to help the children catch up in reading.

The first case of this sort was reported earlier in Figure 5. During baseline, Dan was off-task over 70 percent of the time. Three weeks of positive social reinforcement for work behaviors showed an initial improvement which was then lost. Remedial tutoring in reading was then started for 30 minutes a day. Marked improvements in *classroom relevant behavior* occurred very quickly and were sustained throughout the next 6 weeks. Within 4 weeks after the tutoring had begun Danny had dropped to an average of only 15 percent off-task behavior during his seatwork activities. He still showed deviant behaviors up to 50 percent of the time in his afternoon classes (where the teachers were not trained to use praise) and in morning periods requiring skills he did not have, such as English composition.

Thomas, Nielson, Kuypers, and Becker (1968) attempted to investigate the relative contributions of tutoring and social reinforcement in the elimination of a severe classroom behavior problem. The plan of the study was to introduce the social reinforcement procedures and the remedial tutoring one at a time and assess their effects on both classroom behavior and academic

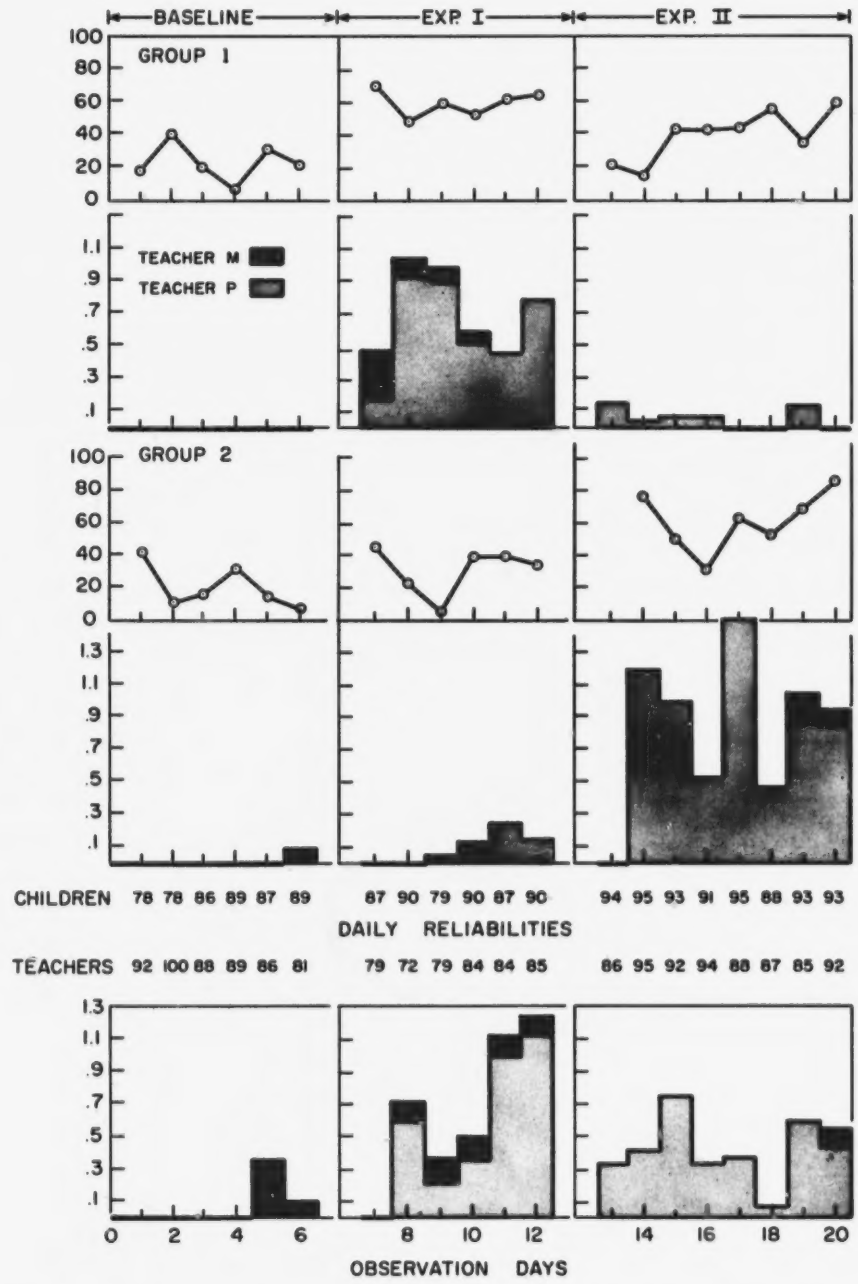

BASELINE
EXP. I
EXP. II
GROUP 1
TEACHER M
TEACHER P
GROUP 2
CHILDREN 78 78 86 89 87 89 87 90 79 90 87 90 94 95 93 91 95 88 93 93
DAILY RELIABILITIES
TEACHERS 92 100 88 89 86 81 79 72 79 84 84 85 86 95 92 94 88 87 85 92
OBSERVATION DAYS

Figure 9. Top Figures: Percentage of time intervals Group 1 boys show relevant behavior (line graph), and average number of approval statements per minute directed to Group 1 boys by teachers (bar graph).

Middle Figures: Percentages of time intervals Group 2 boys show relevant behavior (line graph), and average number of approval statements per minute directed to Group 2 boys by teachers (bar graph).

Bottom Figures: Average number of approval statements per minute directed by teachers to other members of the class.

performance in order to more stringently test the program. Classroom behavior was assessed at a time of the day which did not involve the tutored behavior (reading). The subject, Rich, was a 6-year-old Negro boy whose behavior had grown progressively more disruptive throughout his first 6 months in school. Although intelligence tests had indicated that Rich was functioning in the average range (IQ = 93 on the Stanford-Binet, Form L-M) he had completed only three preprimers in the Ginn basic reading series. Prior to the start of tutoring in mid-March, Rich scored 1.4 in reading on the Wide Range Achievement Test and had a total language age of 6 years and 4 months on the Illinois Test of Psycholinguistic Abilities. This would indicate only a mild educational retardation. However, the deficit might be expected to be cumulative unless appropriate interventions were made.

Social reinforcement procedures were somewhat difficult for this teacher to perform systematically, but with some aid from the experimenters she began to praise appropriate behaviors and approximations of appropriate behavior. She ignored deviant or disruptive behavior unless a child was being hurt, and she made a list of rules (positively worded) which the children learned. These techniques were effective in bringing the level of disruptive behavior down from an average of 87.6 percent during baseline to 51.1 percent prior to the tutoring (see Figure 10). When tutoring was used in conjunction with the program of differential reinforcement, Rich's disruptive behavior continued to

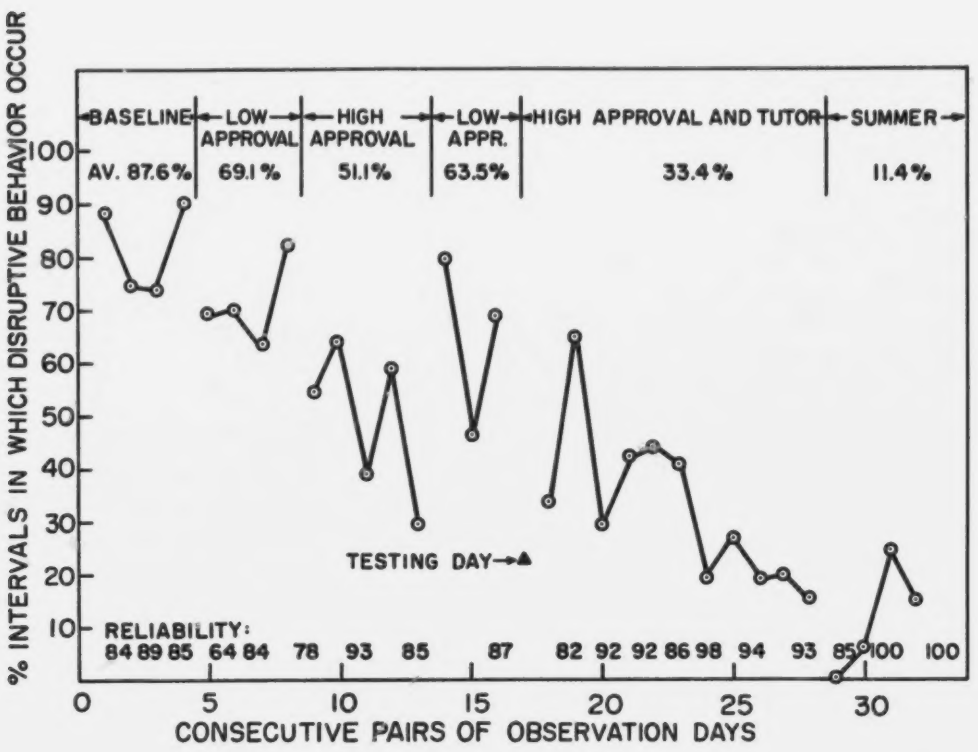


Figure 10. Percentage of intervals in which disruptive behavior occurred as a function of experimental conditions.

decline. Some additional observations were obtained during the summer which indicated that Rich's gains were being maintained in a different classroom, with a different peer group and teacher.

The remedial tutoring program used with Rich was derived from the Staats and Butterfield (1965) procedures. The basic procedure was to start the tutoring materials well below the level at which Rich was working in class. Tokens (points) were given for correct responses during the tutoring session and for problems worked correctly in his workbook while he was studying in the classroom. During the tutoring session he was given points or tokens for learning new vocabulary words, for knowing words previously learned, for reading sentences, and for answering comprehension questions over the readings. In addition, the tutor paired social reinforcement with the earning of tokens throughout the tutoring sessions. Points could be exchanged periodically for candy and toys.

The remedial program was carried out by a university undergraduate who spent 21 hours tutoring Rich over a 6-week period. Test results after the tutoring program indicated that Rich had raised his scores on the Wide Range Achievement Test from 1.4 before tutoring to 2.0 after tutoring. Additionally, on the Illinois Test of Psycholinguistic Abilities his total language age increased from 6 years 4 months to 6 years 10 months, with gains of a year or more appearing on four of the subtests.

The effect of the combination of social reinforcement and tutoring should be carefully considered. A common report of teachers is that children who are being tutored learn to work well in a one-to-one situation, but still cannot function on their own in the classroom. This was not the case with Rich. In fact, there were occasions when he brought worksheets to the tutoring session which he claimed to have completed at home. Two procedures are thought to be responsible for this carry over. First, appropriate behavior in the classroom was strongly supported by the teacher's verbal praise; and second, work done in the classroom could earn points toward the prizes chosen in the tutoring session. The combination of procedures proved to be very effective.

A recently completed, and as yet unreported study, by Varna Garis and Becker, adds immeasurably to the interpretation of the above studies. Five second graders with low first grade reading skills were given tutoring using the Staats procedures outlined above. All of the children showed good reading gains. The variable of experimental concern, however, was on-task behavior in the classroom as determined by direct observation. Three of the children were in one class and two in another. The experimental phases were (a) baseline, classroom observations made with no interventions, (b) tutoring outside of the classroom, no changes in the classroom, (c) points given in tutoring session for completion of classroom workbook assignments in reading, and (d) instruction to teachers on how to praise in the classroom.

The children were off-task initially about 50 percent of the time. Tutoring alone produced a minor improvement in classroom behavior for only one of the five children. Points for completion of workbook exercises produced improvements in classroom behavior for two of the five children (both with the same teacher). Social reinforcement by the teacher produced clear effects for the teacher who was able to increase her level of praise. Teacher A was able to raise

her level of praise from 2 percent to 22 percent of the time intervals and her three children showed only 18 percent off-task behavior. Teacher B was only able to raise her level of praise from .2 percent to 6 percent and her two children averaged 44 percent off-task.

None of the three studies covered in this last section provides clearly separated effects because of the practical difficulties in gaining control of some critical variables. However, taken together the studies suggest a need to carefully examine current procedures and beliefs about school practices. They raise questions like these:

1. Rich was described as very emotionally disturbed (unruly, tantrums, off-task 85 percent). We did not treat his emotional disturbance. We taught him to read and taught his teacher to praise him for good work. He no longer showed the behaviors which would lead one to label him as emotionally disturbed. Was he emotionally disturbed? Could emotional disturbance in any way account for his failure to perform in school?

2. Our remedial reading programs were carried out by persons with no technical training in remedial reading. Is it possible that with a detailing of procedures and the use of effective reinforcement systems technical level people could do jobs for which we now require Masters' degrees? Many school failures might be eliminated at a reasonable cost if this is so. Other studies by Staats with older children support this implication.

3. We often expect a child taught to perform in one situation to do so in another. In the present studies, relevant classroom behaviors occurred with high frequency only when (a) the program made it possible to make right responses, and (b) the child was reinforced for doing so. Teachers often talk as if children ought to like to learn for its own sake and the teachers shouldn't have to do anything special to get children to like learning. But suppose the children do not work on task? Do we just blame the child?

An Independent Set of Findings

Hall, Lund, and Jackson (1968) have reported a series of experiments further demonstrating the reinforcing effects of teacher attention in increasing study behavior. When the teacher was able to ignore disruptive behaviors and praise on-task behaviors, sharp increases in on-task behavior were found. In each of these studies following the first reinforcement period, the teacher returned to her old way of reacting (attending to disruptive behaviors). As a result, disruptive behavior increased and study behavior decreased. Reinstatement of reinforcement for study behavior again produced the expected change. Follow-up checks, made up to 14 weeks after the experimental procedure was completed, showed maintenance of a high level of study behavior.

Summary—Change Procedure I

Change Procedure I involves the simultaneous use of the principles of reinforcement and extinction. Social reinforcers are made to occur following

behaviors you wish to strengthen and all reinforcement is withdrawn from behaviors you wish to weaken. In the studies examined, this change procedure was found to be effective with a variety of behaviors in nursery school and elementary school children. These behaviors are usually termed personality problems, e.g. passivity, regressive crawling, aggressiveness, and withdrawal. For the elementary school teacher, use of this change procedure often involves providing appropriate academic tasks for the child so that relevant behavior can occur and be reinforced. In general, Change Procedure I follows the rule: *Reinforce behavior incompatible with that you wish to eliminate.* But a second rule is also important. *Select incompatible behaviors to reinforce which will be most beneficial to the child's development.* A great economy of effort is achieved if one teaches important social and cognitive skills in the process of eliminating disruptive behaviors.

The various studies covered in this section have the following additional points to make:

1. Social reinforcement will not work with all children but will work with most. Additional procedures may be required.

2. Rules alone do little to influence behavior. They must be made important by providing reinforcement for behaving according to the rules.

3. Many kinds of verbal commands may appear to be effective in eliminating undesired behavior. However, appearances may be deceiving. While commands and critical comments may cue the child to stop a particular unwanted behavior (standing, talking, etc.), the attention given to that behavior by the persons making the command or critical comment may actually increase its future occurrence. "Sit down" commands and disapproving comments were both found to increase the frequency of behaviors they followed. They served as positive reinforcers for the behaviors they were attempting to eliminate. *Learning not to respond to disruptive behaviors* is important for effective teaching. "Ignore" is a key word.

4. If, in fact, the teacher, through the use of her verbal behavior can create "good" or "bad" classroom behaviors, and the controlling variables can be isolated and modified, there is little reason why all teachers can not be taught to be effective teachers. We can no longer blame the unchangeable personality of the teacher or the pupils for an undesired state of affairs.

5. Educational psychologists have often indicated that the good teacher is the one who is warm and positive with her children. The work reported here is consistent with such findings, but leads to a more specific recommendation. The frequency of use of positive social reinforcers (smiles, praise, etc.) is not related to improvement in behavior. It matters *when* the teacher praises *whom* and for *what behavior.*

Change Procedure II: Strengthen the Reinforcers

In our experience, 80 percent to 90 percent of the problem children in elementary classrooms will respond well to some variant of Change Procedure I. For some children, however, the usual methods of reinforcement for school behaviors do not work and it is necessary to devise more effective methods.

The procedure generally involves finding effective reinforcers which can be used to strengthen currently ineffective reinforcers. In adopting systems which involve the use of stronger reinforcers, such as food, toys, special events, it has usually been advisable to use some kind of token reinforcement system along with the stronger reinforcers.

The principles guiding the design of token systems may be stated non-technically as follows:

1. Reinforcers given immediately are more effective than delayed reinforcers. Tokens should be rapidly and easily administered.

2. Tokens or points serve as *conditioned reinforcers* which can be backed up by *many* effective reinforcers. The variety of back-up reinforcers increases the probability that reinforcers will be present for different children.

3. In building new behaviors, frequent reinforcement is desired. After behaviors are established an intermittent schedule of reinforcement is more effective in maintaining behavior. The token system should permit continuous or intermittent presentation of tokens depending on the progress of the child.

4. To reduce the future need for a special reinforcement system, presentation of tokens should be paired with verbal reinforcements, such as "you're right," "good," completing a task, or just working on-task.

Token reinforcement systems have been used successfully, when other approaches have failed, with a variety of problem groups (e.g., Birnbrauer, Wolf, Kidder, and Taque, 1965; Girardeau and Spradlin, 1964; Haring and Lovitt, in press).

Applications in public schools have been entirely experimental to this point. Many promising procedures have been tested. A few of the better controlled studies will be summarized, and then other possibilities will be briefly discussed.

An After School Program for Potential Dropouts

A token system which has proven effective and which might be adaptable to the school setting was developed by Wolf, Giles, and Hall (1968). In this study 16 pupils, from two elementary schools located in the low income district of Kansas City, worked in a remedial program during the summer and after school hours during the regular school year. Evaluation of the program was made in terms of a control group who went to the regular school but was not involved in a remedial program.

The token reinforcement procedure was somewhat like a trading stamp plan. The students accumulated cards marked off into squares and checked by an instructor whenever a student had obtained a point. Each checked square was a token. When a child first joined the program, points were given for each problem which he worked correctly. As a higher response rate was attained by the student, the amount and difficulty of the work required to obtain points increased. The number of points given to a child for a particular bit of work was determined by the instructor alone or by negotiation with the child.

Pages filled with points were redeemable for a variety of goods and events,

such as a circus, swimming, zoo, daily snacks, candy, toiletries, novelties; or long range goals, such as clothes or secondhand bicycles. A number of other contingencies were provided in the program. Their functions were not systematically analyzed. However, they did seem to operate as intended. In an effort to encourage effective instruction, a monetary contingency was arranged for the instructors which was linked to the productivity of their students. Also, in some instances, favorite subjects or popular activities could be attempted after completion of work in less favored areas. Additionally, an increasing bonus was given for longer periods of perfect attendance. A system for rewarding the behavior of the least disruptive child was set up using a kitchen timer which was set to go off at variable intervals during the remedial session. There was also a contingency for report card grades and improvement in grades. A party was given after each grading period for all students who had improved. The students also received bonus points for reports of good behavior from their teacher.

During each of the preceding 2 years the median gain by the experimental and control groups on the Stanford Achievement Test had been .6 years. The gain during the year of the remedial program for the token group was 1.5 years as compared to .8 years for the control group. Remedial group gains were significantly greater. Comments by the regular school teachers suggest that the remedial program benefited the regular school classroom as well. Not only were the program children helped, but their increased participation and changed attitudes increased the productivity of the other children in the classrooms.

The cost per child of the program averaged $225. Wolf has this to say about the cost:

> The cost of the program, which was substantial, must be contrasted with the long-term cost to society in terms of human as well as economic resources lost by not educating these children adequately. The cost could be reduced significantly by utilizing the potential reinforcers which exist in almost every educational setting. Properly used, such events as recess, movies, and athletic and social activities could be arranged as consequences for strengthening academic behavior (Wolf, Giles, and Hall, 1968, p. 64).

An In-School Program for an Adjustment Class

Most of the early experimental work on token programs have used at least one adult for each four or five children. O'Leary and Becker (1967) successfully devised a token program which could be used by one teacher with a classroom of 17 problem children. The children had been placed in a special class because of academic and behavioral deficiencies. They were from deprived homes. The children were 9-year-olds working on a beginning first grade curriculum. Eight of the more disturbed children averaged 76 percent deviant behavior during baseline observations. The teacher had a most difficult time carrying out any procedures which might be considered teaching. She would usually leave the classroom exhausted. The token program was in effect from 12:30 p.m. to 2:00 p.m. each day.

On the first day of the token program, the experimenter placed the class

rules on the blackboard and explained the token procedures to the children. Small 10 cent notebooks were taped to each child's desk. The children were told that they would receive points in their notebooks each 15 minutes. At each rating period they could get from one to 10 points. A mark of 10 meant that they were following the rules very well, while a mark of one indicated that they were not doing their assigned tasks during the rating period. The points or ratings could be exchanged for small prizes, such as candy, comics, perfume, and kites. A variety of items was provided to maximize the probability that at least one of the items would be a reinforcer for a given child at a given time. The experimenter repeated the instructions each day for a week. It was the teacher, however, who provided ratings for the children. For the first 3 days the tokens were traded in at the end of the token period. During the next 4 days points were exchanged at the end of the token period on the second day. For 15 days, the children had to save tokens for 3 days; for the remaining 24 school days, they saved 4 days. During the 3- and 4-day delay periods tokens were exchanged at the end of school. The rating period was extended from 15 to 30 minutes after the first 3 days. The number of points required for a given level of prize was gradually increased.

The results are summarized in Figure 11. During baseline, the children averaged 76 percent disruptive behavior. This dropped to 10 percent during the token period. The gang atmosphere which had prevailed in the room was gone.

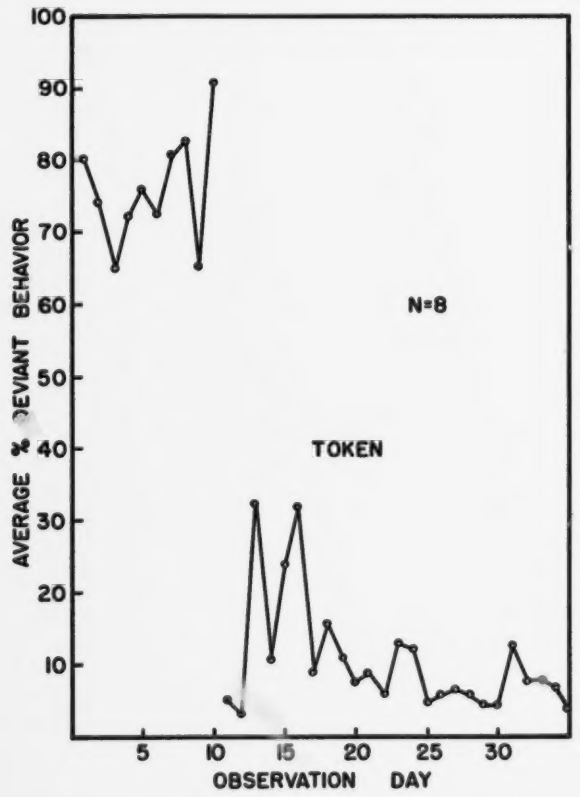


Figure 11. Average percentage of deviant behavior during base and token periods.

It was possible now to begin to teach. The children readily came to respond to the teacher's praise which accompanied the giving of points. The class, considered the worst behaved, became the best behaved class in the school. The children readily learned to tolerate delays in exchanging tokens for prizes. Anecdotal records indicated that while the token procedure was in effect, the children behaved more appropriately, not only in other classroom activities when points were not given, but also during music and library periods. These additional gains are likely due to two procedures: (a) the systematic use of praise for good behavior throughout the day, and (b) the use of various privileges and activities as rewards for improved behavior. The rewards for the program cost $80.76 during the 8 weeks it was in effect. Rewards appear to be less expensive than psychologists! Token program benefits to the teacher were very noticeable in the classroom, and also outside of school hours. For instance, the teacher's roommate commented on how relaxed she (the teacher) was in the evening of the second day of the program.

Two additional studies of similar token systems were carried out to permit a better specification of the critical variables (Kuypers, Becker, and O'Leary, 1968; O'Leary, Becker, Evans, and Saudargas, 1969). Kuypers et al instituted a program using the bare essentials of the point system used by O'Leary and Becker. The teacher was not trained in behavioral principles; she did not use praise or other reinforcement procedures throughout the day; and she gave praise and points for an absolute level of performance rather than rewarding improvement. Under these conditions, there was no generalization of effects from the token period to the nontoken periods. The effects on individuals were varied. Those who were initially better received prizes and showed improvement. Those who were initially more deviant received little reinforcement, did not meet the absolute standard, and were, in fact, punished by the system. They did not show improvement. The effect was like that produced by many current grading systems. The kids who need the reinforcement the most to keep them in school, are those who are given the least reinforcement. It is clear that a simplified token system, like that proposed by O'Leary and Becker, requires a procedure for shaping improvement and the use of other reinforcers (including social reinforcers) to bridge the periods when tokens are not being given. Explicit training in the principles of behavior theory may also be important in allowing the teacher to improvise special program variations as the need arises.

O'Leary, et al (1969) placed a token system similar to that under discussion into a second grade classroom with a nucleus of boys who were difficult to manage. During the study, observational data were collected through eight different conditions. The conditions in order were (a) baseline period, (b) classroom rules added to baseline conditions, (c) educational structure added to condition b, (d) praise for appropriate behavior and ignoring of disruptive behavior were added to condition c, (e) tokens and backup reinforcement (prizes) added to the previous conditions, (f) return to condition d (reversal), (g) repetition of condition e (i.e., tokens, etc.), and (h) shift from tokens and prizes to stars for good behavior, which were backed up once a week by candy.

An analysis of the obtained data indicated that the token reinforcement program was effective in reducing disruptive behavior. The results also showed that a token system based on prizes could be shifted to one based on more commonly used classroom rewards, i.e., stars. Introduction of classroom rules had no effect on disruptive behavior. Educational structure, which was defined as an ordered routine each day of one activity following another, had no effect. Also, praise was not effective with the problem children in this group.

Comments

Comments. Special reinforcement systems will most likely be used with groups of children who are atypical in some way. They promise the special educational teacher powerful approaches to problems which have been highly resistant to change with traditional methods. The complexities of initiating and fading out of token systems are such that we could recommend they be used only under the supervision of someone well-versed in behavioral analysis. As training in basics becomes more available, we can expect extensive applications of these procedures in the near future.

Minitoken Systems (Informal Data)

Many of us working with teachers and their problems on a day-to-day basis have had to devise more effective reinforcement systems for single children in the classroom. In this section, we just want to mention briefly some procedures which have been tried and appear to work, even though objective data has not been collected.

1. Jimmy was aggressive and did not complete class assignments. The teacher worked out a procedure with mother so that Jimmy brought a note home each day he worked hard and was cooperative. With a note Jimmy could watch TV for a specified period that evening; without a note he could not. The note was a token or ticket earned for good classroom behavior which could be exchanged for the privilege of doing something Jimmy liked to do.

2. Aaron was a fourth grade boy from a deprived background. He would not get down to work in class, preferring to dawdle or play with his friends. He was often reported to be aggressive with younger children coming to and from school. Aaron earned checkmarks on the board, one check for each 10 minutes of good working behavior. If he earned 10 checks, he could spend 30 minutes in the kindergarten supervising younger boys in the use of carpentry tools. The younger children could use the tools only when he was there. They appreciated his coming. Aaron learned to work in the classroom, and work cooperatively with younger children.

3. The problem was how to manage the rowdiness, fighting, running, etc., that accompanies leaving school. The solution found was to train the patrol boys to record names of children who were well-behaved leaving school, rather than having them play policeman. The class with the most names recorded that

week got a pennant for its door.

4. Jack earned an "X" on the board for each half day he did not fight in class. Intially four "Xs" earned a party for the whole class, e.g., Jack passed out a candy treat to all. Later he worked for 10 "Xs," etc.

5. Sloane and Allen at the University of Utah have had a number of teachers using a program they devised to train a child to remain in his seat for longer periods of time. The same program can be used for increasing on-task behavior, decreasing thumbsucking, or any one of a variety of other behaviors. The teacher sets a kitchen timer according to a variable schedule specified by the program. When the bell rings the teacher looks at the child and determines whether reinforcement is due or not. If the child is showing the target behavior when the bell goes off, the teacher nods to the child to cue him to record a mark on the ladder chart on his desk. When the 50 steps of the ladder are filled, the child can spend the points for a preselected activity or prize (the list of reinforcers is made ahead of time to include activities or tangibles the child would work for). The program slowly increases the time between bells. Then step by step, the timer, the chart, the points, and eventually the special reinforcers fade out. Most teachers whom we have had use the program have reported that it works well.

6. A number of teachers we have worked with have had their class members earn recess by showing good working habits. The general procedure is to determine about how long the available work time is and divide that by an average recess duration. The whole class then works to earn recess each day. For each 5, 8, 10, or 15 minute period of good working, one or more minutes of recess is earned. The formula should be set so that improved working will earn a slightly longer recess than is currently vailable "free." Some of our teachers have found this procedure to be effective; whereas, the contrary procedures of counting black marks which led to losing recess often failed. The points-for-recess procedure can also be used with a single child in the class.

7. Kenny was being sent to see the social worker every time he had a tantrum or fought in class. Tantrums and fighting seemed to increase. After a discussion with the teacher and the social worker, it was decided that Kenny would have to earn time with the social worker by showing progressively improved classroom behaviors. Tantrums and fighting decreased rapidly.

In general, there are all sorts of reinforcers available to the teacher every day, which only require a little ingenuity to detect and use. Anything that children will engage in readily can be used to reinforce behavior. "You can lead the pledge because you raised your hand." "Mary's row is ready and quiet with coats all buttoned. You may line up first." "Jim's finished his assignment. He can help me pass out these papers from yesterday." "Tony really worked hard during reading. What game would you like the class to play at recess?" The list of possible contingency statements of this sort is endless.

Summary—Change Procedure II

When the usual methods for reinforcing behavior do not work, it is necessary to find effective reinforcers. Often this means going back to more

primary reinforcers like food, but any effective reinforcer will do. Token systems attempt to provide effective reinforcers by allowing a choice of possible items or activities for which tokens can be exchanged. Most token systems, which have been devised for use with special problems groups, require more manpower to operate than is typically available. Often, however, the extra manpower is worth the cost in terms of the benefit to the children. Our attempts to provide a simplified token system which could be used in a public school classroom have met with some success. But, at this point, it is recommended that similar programs be instituted only when professional consultation is available to help adapt the procedures to a particular setting and group of children. A number of less elaborate ways of strengthening the reinforcing consequences available to a child were discussed.

Change Procedure III: Punishment of Inappropriate Behaviors Combined with Reinforcement of Appropriate Behaviors

Certain stimulus events which occur following operant behaviors will weaken such behavior. Stimulus events with such properties are termed punishing stimuli; the process is termed punishment.

There has been little systematic investigation of punishment procedures in the elementary school classroom. Thomas, Becker, and Armstrong (1968) investigated the effects of frequency of criticism and O'Leary and Becker (1969) explored the effects of intensity of verbal reprimands. In the study by Thomas and others, criticisms were found not to function as punishers, but as reinforcers for misbehavior. O'Leary found that quiet reprimands were more effective than loud reprimands in controlling misbehavior during a rest period. Carlson, Arnold, Becker, and Madsen (1968) describe a case study in which restraint by a teacher aid was used as part of a program to eliminate tantrums by an 8-year-old girl. Being held in her chair until the tantrums ceased probably functioned as a punishing stimulus. This punishment procedure, however, was accompanied by the use of several reinforcement procedures. Peers were given candy for not paying attention to the girl when she tantrumed. The girl could earn stars toward a class party for each half day without tantrums. The tantrums were eliminated in 3 weeks.

Under proper conditions, punishment can be very effective in controlling behavior. Generally, however, we prefer not to use punishment procedures except in those few cases were problem behavior is so frequent that we would have no behavior to reinforce, unless the problem behavior was first punished, or so intense that one could not safely risk the behavior occurring for fear of danger to the child or others.

Punishment procedures can take two forms: (1) presenting stimulus events following a response (e.g., a spanking), and (2) terminating stimulus events following a response (e.g., preventing the child from access to reinforcers which are usually available). We generally avoid using punishment which involves presenting stimuli (physical punishment), not because it can't be made to work, but because of the undesired side effects it has. We learn to avoid and escape

from sources of punishment. If children are taught to avoid and escape from adults responsible for their socialization, the adults in effect lose control over the children. Avoidance and escape behaviors often have names such as lying, hiding, truancy, cheating on exams, doing things behind one's back, etc. Accompanying such avoidance and escape behaviors are negative feelings for the persons who use punishment. For the most part, the teacher is wise to find other means of influencing children.

Punishment by terminating reinforcing stimuli has been given many names. Deprivation of privileges and isolation is close to the currently popular technical term: time out. Repeated studies with varieties of problem children have demonstrated time out to be an effective method for punishing frequent and/or intense deviant behaviors. Time out is short for "time out from positive reinforcement." The term is to be preferred over isolation simply because it cues the user concerning important characteristics of the procedure. Unless there is a reinforcing state of affairs present, there can be no time out from it. Simply isolating a child from an otherwise neutral environment could not be expected to function as a punishment. An effective time out procedure requires a currently reinforcing state of affairs which is effectively stopped. Some teachers send children to the office, or into the halls as a kind of time out. If the children receive more attention in time out than they will behave badly in order to have such procedures repeated. Time out becomes reinforcing. Unless the ground work has been carefully prepared so that proper procedures and facilities are available for time out, the teacher is better off to use no punishment at all and focus on reinforcing incompatible behaviors. Punishment that doesn't work is likely to be reinforcing problem behaviors.

One final point to be considered is that whenever punishment procedures are used and are effective, there remains a choice in procedures: (1) keep up the punishment day by day, or (2) reinforce incompatible behavior while the rate of the punished behavior is low. Punished behavior will return to its prepunishment rate if punishment is withdrawn and the behavior can still pay off. Since most of us do not like to punish (it's hard on the punisher, too), we should always consider the reinforcement of behavior, incompatible with that which led to punishment, an important part of any punishment procedure. If the child is aggressive, we reinforce cooperative efforts. If the child blurts out a lot, we reinforce by asking him to raise his hand and wait for a turn to be called on.

Summary—Change Procedure III

Change Procedure III is a real option for the teacher. However, punishment procedures are not used extensively because of their undesired side effects. Although they are not needed very often, intelligent and selective use of punishment may be just what is required for some problem behaviors.

Recap of Key Procedures for Classroom Management

1. Specify in a positive way the rules which are the basis for your reinforcement. Demonstrate the behaviors you desire by praising the children who are good examples of following the rules. Rules are made important to children by providing reinforcement for following the rules. Rules may be different for different work, study, or play periods. Keep the rules to five or less. As the children learn to follow the rules, repeat them less frequently, but continue to praise good classroom behaviors.
2. Relate the children's performance to the rules. Be specific about the behaviors children show which mean "paying attention" or "working hard." "That's right, you're a hard worker." "You watched the board all the time I was presenting the example. That's paying attention." "That's a good answer. You listened very closely to my question." "Jimmy is really working hard. He'll get the answer. You'll see." "Gee, you got it. I didn't think you would. That's good working." Relax the rules between work periods. Don't be afraid to have fun with your children when the work period is over.
3. Catch the children being good. Reinforce behavior incompatible with that you wish to eliminate. Select incompatible behaviors to reinforce which will be most beneficial to the child's development. Focus on reinforcing tasks important for social and cognitive skills in the process of eliminating disruptive behaviors.
4. Ignore disruptive behaviors unless someone is getting hurt. Focus your attention on the children who are working well to prompt the correct behaviors in the children who are misbehaving. Reinforce improvement when it does occur.
5. When you see a persistent problem behavior, look for the reinforcing events. It may be your own behavior.
6. You can use as a reinforcer any activity the child likes to participate in, as well as social attention, praise, or more tangible reinforcers.
7. In looking for reinforcers to use to strengthen behaviors remember these:

reinforcers controlled by parents	being right
the social worker's attention	being first
games and puzzles	toys and edibles
honors and privileges	trinkets
helping teacher	a class party
playing teacher's role	art activities
recess	music
praise and attention	extra gym periods

8. Reinforcing events must immediately follow the behavior to be strengthened.
9. Social reinforcers do not work for all children. When necessary to get appropriate behavior going, strengthen the reinforcers being used.

10. If a point system backed up by tangibles or special activities is introduced, always accompany the points given with praise and words telling the children what they did well. These steps will help make praise alone effective as a reinforcer, as well as completing the tasks which are the basis for reinforcement. "You finished all of your arithmetic problems. That really pleases me. I'm giving you nine points for that." Relate the payoff to what he did to earn it. "You earned this model airplane by working really hard on arithmetic and reading. I'm proud of your improvement." Slowly require the child to work for longer periods with less tangible payoffs, but give lots of praise and other forms of social reinforcement.
11. Seek special training or consultation if elaborate token systems seem to be the answer for you.
12. Punishment is most likely to be required when the unwanted behavior is very intense (so that there is potential danger to self or others) or very frequent (so that there is little positive behavior to work with).
13. If punishment is necessary, first try isolating the child in a room by himself with only a chair and a light. The child should remain in the time out room until he is quiet for several minutes. Give one warning prior to the use of time out, so that the warning signal can be used most of the time as a punishment without the need for time out.
14. Any use of punishment should be accompanied by the use of reinforcement of behaviors incompatible with the punished behaviors.
15. Hold consistently to your rules for reinforcement, extinction, or punishment. This means do not sometimes reinforce and sometimes punish the same behavior. Do not give in after deciding a behavior should not be reinforced. Only if you show consistent reactions to the children's behaviors can they learn what is reinforced and what is not.

The Future

In this review, we have focused mainly on *consequent* stimulus events and how the teacher can use them to motivate more effective classroom behaviors. One must also be very concerned with the academic program provided the child in order to achieve long-term improvements in classroom behavior. Academic programs mainly deal with stimulus events which precede operant behaviors. Generically, we call such stimuli *discriminative stimuli.* They involve such things as members of concept classes, cues and prompts, instructions, and questions. New strategies for concept teaching and the programming of effective instruction for every child are now under development and are being tested. Engelmann's (1969a, 1969b) recent publications in this area outline some exciting possibilities for the improvement of teaching techniques, and provide very practical suggestions *now* for the teacher wishing to do a better job of instruction.

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